

## THE NEUROPTERA AND MECOPTERA OF KANSAS.<sup>1</sup>

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Kansas has a good representation of Neuroptera and Mecoptera, and several species among those listed may be appropriately classed as common insects. This list is of especial interest in that it shows a blending of the eastern and western species, and of northern and southern ones.

Several lists of the Kansas species of these two orders have been published, the most important one being Tucker (5).<sup>2</sup>

<sup>2</sup> Numbers in parentheses refer to the bibliography. Other lists somewhat less complete have been published by Banks (1) and Tucker (4).

The list here given includes those taken by the writer in five summers' collecting in Riley County, those in the collection of the Department of Entomology of the Kansas State Agricultural College, and those in the collection of Kansas University supplied through the courtesy of Professors S. J. Hunter and H. B. Hungerford. A list of the identified specimens of these orders now in the Kansas University collection was furnished the writer also with the locality and name of the identifier. Parts of these data have been included in this paper in an effort to make the list as nearly complete as is possible at this time.

Specimens of nearly all of the species listed have been sent to Dr. Nathan Banks for determination or verification, and the writer is pleased to acknowledge this valuable and authoritative assistance. Species marked with an asterisk (\*) were verified by Dr. Banks, otherwise, unless credited to him or to someone else, the specimens were identified by the writer. Where no collector is named, the specimens were usually collected by the writer. The names of collectors have been given except where the species is rather common and many specimens have been taken.

In the listing of species, Comstock's classification as to families has been followed.

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## NEUROPTERA.

## SIALIDAE.

- Corydalis cornuta* Linn. (5). Many specimens in collections; June 26 to Aug. 3, taken chiefly at lights; much variation in size, 60–80 mm. in length. Larvae plentiful in Wild Cat creek, Riley County.
- Chauliodes serricornis* Say. One specimen in K. S. A. C. collection, taken by Elmer Cheatum along Walnut river, Winfield, Kansas, July 18.
- Chauliodes rastricornis* Ramb. (5). Douglas County. Not seen by the writer.
- Sialis infumata* Newm. Det. J. G. Needham. Three specimens from Riley County, April 2–May 11, collected by F. E. Whitehead. An uncommon species at Manhattan. Eight specimens in K. U. collection, Douglas Co., April 14, Robert Guntert collector.

## RAPHIDIIDAE.

None seen nor reported from this state.

## MANTISPIDAE.

- Mantispa brunnea* Say.\* Rare. Specimens from Riley Co., June 8–Sept. 1, collected by G. A. Dean and E. A. Popenoe. Specimens in the K. U. collection from Douglas, Allen, Chautauqua, Anderson and Neosho Counties. Collected by R. H. Beamer and others.
- Mantispa interrupta* Banks. Identified by Banks. Very rare. Three specimens; Riley Co., May 28, Popenoe; Dean, Riley Co., Aug. 10, and one taken by a member of a class on a field trip, Aug. 16, 1922, while beating oak trees along Wild Cat Creek, Riley Co. Five specimens in K. U. collection from Osage and Lyon Counties, R. H. Beamer collector; and from Burr Oak, Kans., J. N. Smith collector.
- Mantispa sayi* Say. Identified by Banks. A single specimen in the K. U. collection taken by R. H. Beamer, Lyons Co., Kansas, June 8.

## SISYRIIDAE.

- Sisyra vicaria* Walk. Reported (5) from Hodgman County.

## SYMPHEROBIIDAE

- Symphorobius barberi* Banks. Identified by Banks. Many specimens taken by beating oaks along Wild Cat Creek, June

12, July 7, and Oct. 14. Eggs were obtained, and three larvae reared.

*Symphorobius amicus* Fitch (5). One specimen, Riley Co., June 12, taken with the above species. Reported from Douglas Co. (4), and there is a specimen determined by Banks in the K. U. collection from Douglas Co. Reared (3).

*Symphorobius sparsus* Banks. Identified by Banks. In K. U. collection from Douglas Co.

*Symphorobius perpavus* McLach. Reported by Tucker (6) from Douglas Co.

#### HEMEROBIIDAE.

*Hemerobius stigmaterus* Fitch (5). Identified by Banks. Our most common Hemerobiid. Taken by beating pines, April 7 to June 17, by sweeping alfalfa April 14 to Dec. Reported (5) from Douglas Co. One specimen from Norton Co. collected Aug. 5, by F. X. Williams, is in the K. U. collection. Of some value in aphid control. Reared (3).

*Hemerobius humili* Linn.\* (3). Three specimens, June 27 (2) and Sept. 8. An eastern species and very rare here. Two specimens from Douglas Co. taken by C. P. Alexander and R. H. Beamer are in the K. U. collection.

*Micromus posticus* Walk.\* (3). Five specimens, Mar. 5, Oct. 10, and June 22, 1922. One specimen in K. U. collection. Montgomery Co. Occurs in alfalfa fields and on trees. Reared (3).

*Micromus variolosus* Hag.\* Many specimens taken by sweeping alfalfa, June 20, Sept. 8 and 17, on the college farm at Manhattan. Many specimens also taken by Edgar Davis in thermographs in an alfalfa field during the fall and winter of 1924, where they overwintered as adults.

#### BEROTHIDAE.

*Lomamyia flavicornis* Walker\* (3). Two specimens, June 16 and 18, a male and a female collected by beating lower branches of an oak tree along Wild Cat creek; an exceedingly rare species. An eastern form at perhaps its western limit.

#### POLYSTOECHOTIDAE.

*Polystoechotes punctatus* Fab. (1). One specimen in the K. U. collection taken by F. X. Williams in Greeley Co. A northern species and exceedingly rare here.

## CHRYSOPIDAE (2).

- Chrysopa oculata* Say (5). Fairly plentiful during July, August, and September; ranks second in numbers of the Chrysopids. Most frequently taken on elms, in gardens, especially melon patches, alfalfa fields and corn fields. Wings of this species appear to average slightly darker than eastern specimens. K. S. A. C. specimens from Riley Co. K. U. specimens from Miami, Montgomery, Johnson, Bourbon, Chautauqua, Russell, Douglas, Sedgwick and Clark Counties. Probably all over the state.
- Chrysopa nigricornis* Burm. (1). Fairly common during July, Aug. and Sept. on trees, vegetation, under trees and on underbrush. K. S. A. C. specimens from Riley and Edwards Counties; appear to be slightly lighter than eastern specimens. K. U. specimens from Gray and Rush Counties. Others determined by Banks from Chautauqua, Rawlins and Douglas Counties.
- Chrysopa rufilabris* Burm. (5). Somewhat less common than the above species. Specimens in K. S. A. C. collection, Riley County, from July 7 to Oct. 4. Occurs on *Spiraea*, sorghum, alfalfa, and on various trees, especially fruit trees. Specimens in K. U. collection from Douglas and Clark Counties. Others identified by Banks from Douglas, Miami, Russell and Johnson Counties.
- Chrysopa quadripunctata* Burm. About as common as *C. nigricornis* and occurs in the same habitats, June to August. Larvae sometimes found feeding on woolly apple aphids on elm and apple, and on various Cicadellid nymphs. Specimens in K. S. A. C. collection from Riley and Kiowa Counties.
- Chrysopa cockerelli* Banks.\* The most interesting of Kansas species. Larvae are true trash carriers; occur on various trees, especially oaks, maples and lindens, where they may be found crawling around on the trunks or limbs, June to Oct. Overwinters as larvae. Adults rare, taken once by beating willows. Dr. Hungerford stated that trash carriers presumably of this species occurred at Lawrence, Douglas County.
- Chrysopa plorabunda* Fitch (1). The state's most common and abundant Neuropteran. Present during the entire year, as it overwinters in the adult stage. Common in alfalfa, sorghum, corn and on other field crops, also on various trees and shrubs. Valuable enemy of various aphids, especially on alfalfa, sorghum, corn and apple. Overwintering adults

are of both sexes; become greatly discolored in fall, dull brownish or reddish-brown, but regain their normal green coloration in spring, after taking food, especially water.

*Chrysopa sabulosa* Banks (4). A specimen in the K. U. collection from Wallace County, collected by F. X. Williams.

*Chrysopa harrisii* Fitch. One specimen, June 23. A northern species and very rare in Kansas; on evergreens. A single specimen is in the K. U. collection from Saline Co., July 3. L. C. Woodruff collector.

*Eremochrysa punctinervis* McLach.\* One specimen, April 28, taken at Manhattan by beating arbor vitae or pine trees in the cemetery. The specimen is unusual in that the third cubital cell is divided as in *Nothochrysa*. A southwestern species which is very rare here. Two specimens in the K. U. collection—one collected by F. X. Williams in Thomas County, and the other from Barton County.

*Eremochrysa fraterna* Banks.\* Specimens of this species are in the K. U. collection, determined by Banks, from Wallace, Finney, and Hamilton Counties. Three specimens taken on weeds bordering a sorghum field at Manhattan, July 3, 1925. Reared; larva a trash carrier. A western species and rare in Kansas.

#### MYRMELEONIDAE.

*Dendroleon obsoletum* Say.\* Fairly plentiful at Manhattan, during July and August, occurs also April to September. Larvae collected several times and reared. Overwinters in the cocoon. Specimens in K. U. collection from Chautauqua and Douglas Counties.

*Brachynemurus abdominalis* Say\* (1). The state's most common ant lion, fairly plentiful in alfalfa fields. Numerous specimens in K. S. A. C. collection, June 16 to September 18, and also in the K. U. collection. A weak flier and readily collected; probably all over the state.

*Brachynemurus nigrilabris* Hag.\* (4). Eight specimens collected by F. X. Williams in the K. U. collection from Seward County. One specimen in K. S. A. C. collection from Riley County.

*Brachynemurus hubbardi* Currie\* (4). Eleven specimens in the K. U. collection from Clark, Seward, Stafford, Gray, McPherson, and Pawnee Counties; also specimens determined by Banks from Clark, Seward, Norton, and Finney Counties.

*Brachynemurus texanus* Banks. A specimen identified by Banks is in the K. U. collection from Clark County.

- Brachynemurus irregularis* Currie. Identified by Banks. Two specimens in the K. U. collection from Clark County collected by F. N. Snow. Three specimens in K. S. A. C. collection. July 16, taken at the sand dunes in Riley County.
- Brachynemurus blandus* Hag. A specimen determined by Banks is in the K. U. collection from Hamilton County.
- Brachynemurus texanus* Banks. A specimen from Clark County determined by Banks is in the K. U. collection.
- Myrmeleon immaculatus* DeGeer. Two specimens identified by Banks in the K. U. collection from Gray County, July 9-15, and the other collected by W. J. Brown, July 16, in Douglas County. Three specimens in K. S. A. C. collection from Riley County. One September 20, collected by Norton, and the other two, July 2 and 14, by the writer.
- Psammoleon guttipes* Banks. Three specimens identified by Banks in the K. S. A. C. collection from Russell and Riley Counties. The former were taken June 20, the latter is undated. Three specimens in the K. U. collection taken in July from Douglas, Gray and Hamilton Counties.
- Hesperoleon abdominalis* Say. Identified by Banks. A single specimen in the K. S. A. C. collection without date or locality label. Two specimens in K. U. collection from Greenwood County, July 31 and September 2.
- Cryptoleon signata* Hag. Identified by Banks. Several specimens collected at the sand dunes, Riley County, Kansas, during July.

## ASCALAPHIDAE.

- Ululodes macleayana* Hag. (*hyalina* Latr.) (1). One specimen identified by Banks in the K. S. A. C. collection, taken by J. B. Norton, Riley County, July 18. Three specimens in the K. U. collection from Cowley, Douglas and Chautauqua Counties, collected by R. H. Beamer. Previously reported from Douglas County.
- Colobopterus excisus* Hag. A single specimen of this unusual and exceedingly rare insect in the K. S. A. C. collection taken by some student in south-central Kansas, undated. One specimen determined by Kahl in the K. U. collection.

## CONIOPTERYGIDAE.

- Coniopteryx vicina* Hagen. Reported (5) from Douglas County, Kansas. Determined by Banks. One specimen taken in the home of the writer on a table under a light, May 29, 1925.

MECOPTERA.

PANORPIDAE.

*Panorpa nuptialis* Gerst. A single specimen of this striking species in the K. S. A. C. collection; taken at Baxter Springs, Cherokee County, July 9, by W. R. Ballard. Two specimens in the K. U. collection from the same county.

*Panorpa confusa* Westwood.\* A long series in the K. U. collection from Leavenworth County, June 28. Collected by R. H. Beamer.

BITTACUSIDAE.

*Bittacus stigmaterus* Say (1). Fairly common in the alfalfa fields and some woods, July to September. Many specimens from Riley County in K. S. A. C. collection. Specimens in K. U. collection from Montgomery County, taken by R. H. Beamer. Also specimens identified by Banks from Douglas, Smith, Rooks and Osborne Counties.

*Bittacus strigosus* Hag.\* (1). Fairly common in alfalfa fields in Riley County from early August to late September. Many specimens from Riley and Washington Counties in the K. S. A. C. collection. Specimens in K. U. collection from Montgomery, Leavenworth, Gray, and Chautauqua Counties. Previously reported from Douglas County.

*Bittacus occidentis* Walk.\* Occurs with the two preceding ones, but is less common. Specimens in K. S. A. C. collection taken in July and September, Riley and Cowley Counties. Specimens from McPherson, Kiowa, Saline, Rice, Greenwood, Waubaunsee, and Douglas Counties are in the K. U. collection.

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